

### REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

Before addressing the specific grounds of rejection raised in the present Office Action, applicants have amended Claim 1 to positively recite that the claimed method for forming a low resistance MOSFET device includes, among other steps, a step of forming a dopant region including source/drain extensions and deep source/drain regions using a single dopant implant. Support for this amendment to Claim 1 is found in paragraphs [0020] and [0050]-[0052] of the originally filed specification. Applicants have also amended paragraph [0052] to reflect the language found in paragraphs [0020] and [0050].

Additionally, Claims 5 and 10 have been cancelled and Claim 11 has been amended to be dependent on Claim 1, instead of cancelled Claim 10, and to include language that has antecedent basis in amended Claim 1.

Claims 18 and 19 have been amended by changing the term "said silicide region" to "said first silicide region". Applicants observe that the amendment made to Claims 18 and 19 is consistent with the amendment suggested by the Examiner in the present Office Action. Hence, the amendment to Claims 18 and 19 obviates the Examiner's ground of objection raised in the present Office Action.

Since the above amendment to the claims does not introduce new matter into the application, entry thereof is respectfully requested.

In the present Office Action, Claims 1, 5, 10-12, 15, 16, and 17 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,063,681 to Son,

et al. Claims 2-4 stand rejected under 35 U.S.C. § 103 as allegedly obvious over the combination of Son, et al. and U.S. Patent No. 6,313,020 to Kim, et al. Claims 6-9, 13, 14, 18, and 19 stand rejected under 35 U.S.C. § 103 as allegedly obvious in view of Son, et al.

Turning to the rejection of Claims 1, 5, 10-13, 15, 16 and 17, under 35 U.S.C. § 102, it is axiomatic that anticipation under § 102 requires the prior art reference disclose every element to which it is applied. *In re King*, 801 F.2d 1324, 1326, 231 USPQ 36, 138 (Fed. Cir. 1986). Thus, there must be no differences between the subject matter of the claim and the disclosure of the prior art reference. Stated another way, the reference must contain within its four corners adequate direction to practice the invention as claimed. The corollary of the rule is equally applicable: absence from the applied reference of any claimed element negates anticipation. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986).

Applicants submit that Son, et al. fail to disclose the claimed method of forming a low resistance MOSFET that is recited in amended Claim 1. Specifically, Son, et al. do not disclose a method for forming a low resistance MOSFET device which includes, among other steps, a step of *forming a dopant region including source/drain extensions and deep source/drain regions using a single dopant implant*.

Son, et al. disclose a method of forming a semiconductor device having lightly doped diffusion (LDD) regions and deep source/drain regions that are provided with a silicide for reducing resistance to prevent short channel effects. Referring to FIG. 2 of Son, et al., applicants observe that the prior art structure comprises at least lightly doped diffusion (LDD) regions 27 and deep source/drain regions 30, which are formed utilizing

separate implant steps. Therefore, since Son, et al. disclose at least two dopant regions, i.e., deep source/drain regions 30 and LDD regions 27, formed from different implant steps, the applied reference fails to disclose a dopant region including source/drain extensions and deep source/drain regions that are formed utilizing a single ion implant step, as recited in amended Claim 1.

Applicants further observe that in one embodiment of Son, et al., (see, FIGS. 5A-5G), deep source/drain regions 30 are formed by out-diffusion from a first overlaying dopant source layer and the source/drain extensions 27 are formed by out-diffusion from a second dopant source layer. Therefore, Son, et al. fail to disclose applicants' claimed method recited in amended Claim 1.

The forgoing remarks clearly demonstrate that the applied reference does not teach each and every aspect of the claimed invention as required by *King and Kloster Speedsteel, et. al.*, therefore the claims of the present application are not anticipated by the disclosure of Son, et al. Applicants respectfully submit that the instant § 102 rejection has been obviated and withdrawal thereof is respectfully requested.

Turning now to the rejections of Claims 2-4, 6-9, 13, 14, 18, and 19 under 35 U.S.C. § 103, applicants respectfully submit that Son, et al. alone, or in combination with Kim, et al. fails to render the dependent claims unpatentable since the applied prior art does not teach or suggest applicants' claimed method as recited in Claim 1. If an independent claim is non-obvious under 35 U.S.C. § 103(a), then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Son, et al. fail to render applicants' claimed method of forming a low resistance MOSFET obvious for the same reasons Son, et al. fail to anticipate applicants' claimed

method. To reiterate, Son, et al. fail to teach or suggest a method comprising, among other steps, a step of *forming a dopant region including source/drain extensions and deep source/drain regions using a single dopant implant*, as recited in amended Claim 1. Son, et al. disclose forming nFET devices comprising at least two implant steps to provide lightly doped diffusion (LDD) regions and deep source/drain regions. In an alternative embodiment, the two-dopant regions are created using two distinct dopant source layers. "To establish a prima facie case of obviousness of a claimed invention all the claimed limitations must be taught or suggested by the prior art". *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 44, 496 (CCPA 1970).

Kim, et al. fail to fulfill the deficiencies in the primary reference, Son, et al., since Kim, et al. also does not teach or suggest applicants' claimed method in which a dopant region including source/drain extensions and deep source/drain regions is *formed using a single dopant implant*. Kim, et al. disclose a method of forming a semiconducting device in which an electron depletion prevention layer is provided in a bottom portion of a polysilicon gate. Applicants observe that Kim, et al. are relied upon for disclosing predoping of the gate region and do not teach or suggest a method of forming a low resistance MOSFET having multiple thickness silicide regions comprising the steps of forming a dopant region including source/drain extensions and deep source/drain regions using a single implant. Referring to FIGS. 8-14 of the Kim, et al. disclosure, Kim, et al. disclose that dopant regions 80, 90 are formed using two ion implant steps including a first implant region 81, 83 and a second implant region 82, 87. Therefore, since Kim, et al. disclose a method comprising at least two ion implant steps

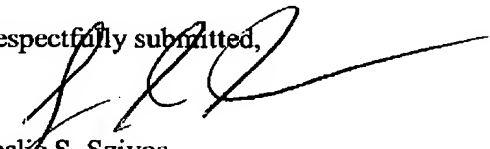
to provide dopant regions 80, 90, Kim, et al. fail to teach or suggest applicants' claimed method recited in amended Claim 1.

The § 103 rejections also fail because there is no motivation in Son, et al. and/or Kim, et al. that suggests modifying the disclosed method to include a step of *forming a dopant region including source/drain extensions and deep source/drain regions using a single dopant implant*. Thus, there is no motivation provided in the applied reference, or otherwise of record, to make the modification mentioned above. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Vaeck*, 947 F.2d, 488, 493, 20 USPQ 2d. 1438, 1442 (Fed.Cir. 1991).

The rejections under 35 U.S.C. § 103 have been obviated; therefore reconsideration and withdrawal thereof is respectfully requested.

Wherefore, consideration and allowance of the claims of the present application are respectfully requested.

Respectfully submitted,

  
Leslie S. Szivos  
Registration No. 39,394

SCULLY, SCOTT, MURPHY & PRESSER  
400 Garden City Plaza, Suite 300  
Garden City, New York 11530  
(516) 742-4343

HAH/LSS:gc

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**